1892MNRAS..52..544R

a centre, is irregularly round, very faint stars 15 magnitude all distinct, but running together into a blaze in the middle, 4′ or 5′ diameter."

Lord Rosse records four observations of the cluster between the years 1852 and 1876, and he states that the stars are bright and faint, and sharply distinct from each other; nucleus a little excentric from the middle. These descriptions convey but little information that is of scientific value, and there are no drawings for comparison with the photographs.

A well-executed print from an enlargement of a photograph of this cluster is given in the volume of the *Specola Vaticana* for 1891, and I have compared it with these photographs, and give the following results:—The stars are easily identified on the respective photographs, but the extent of the nebulosity differs largely. On the Vatican print it can be measured to about sixty-five seconds of arc in diameter round the nucleus, but on my print it measures about 200 seconds of arc. The Vatican print does not cover the whole of the cluster, and in that respect these prints convey a fuller idea of the magnificent proportions of the object. Several rings of stars are visible round the margin of the cluster, and there are also branches, extending in various directions.

Now that we have accurate records of the position and magnitude of every star in the cluster, it is obvious that a few years hence it will be possible to unravel the mysteries that present themselves to us in this and in several other similar star clusters.

Photograph of the Nebula ♅ *V* 15, *near* 52 *Cygni.*

By Isaac Roberts, F.R.S.

The enlarged photograph now presented was made from a negative, taken with the 20-inch reflector, on 1891 September 28, and exposure of the plate during four hours of clear sky, and represents the region round the double star, 52 *Cygni*, R.A. 20^{h} 41^{m}, declination 30° 20′ N., on the following side of which is the remarkable nebula ♅ V 15.

This nebula is thus described by Sir John Herschel in his observations of nebulæ and clusters of stars, No. 2088. The nebula is very long and winding, and runs northward from k (52), full two fields breadth (30′). The nebula extends southwards far beyond k *Cygni*, but is extremely faint; the northern part is pretty bright, and extends to two stars. Northwards from k *Cygni*, 27′, extends a curved tail of nebula of a serpentine form, fading very gradually into two tails forming a fork.* A drawing of the nebula is given in the *Phil. Trans.* R.S., in 1833

---

* Abridged description.

Downloaded from http://mnras.oxfordjournals.org/ at Serials Section, Dixson Library on June 9, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System

1892MNRAS..52..544R

November, which shows very fairly in its outline parts of the brighter nebulosity, but the photograph clearly shows that these form part of an irregular oval nebula of gigantic dimensions. It is more than two degrees in length from north to south, and forty-seven minutes of arc in breadth on the following side of 52 *Cygni*, which it barely touches by a slight projection. The nebulosity is of a very faint streaky character, excepting that which was seen by Sir John Herschel. The nebula as a whole is not symmetrical, but seems to be made up of detached patches of light covering the large area, and a much longer exposure than four hours will be required to show the connections of these diffused patches of light. It will be observed on examination of the photograph that the stars on the *following* side of 52 *Cygni* are very much more numerous than they are on the *preceding* side. The bright part of the nebula seems to form almost a defined boundary between the stream of the Milky Way stars and those on its *preceding* side. The straight line across 52 *Cygni* was caused by a sudden gust of wind during the exposure of the plate.

Photograph of η Argûs. By H. C. Russell.

I think the photograph sent herewith, which is an enlargement of one of our photographs of η *Argûs*, taken with the star camera and $5\frac{3}{4}$ hours' exposure, will be interesting to the members of our Society. The scale is 12·4 inches = 1°; and it brings out in a satisfactory way most, but not all, that the negative contains. The scale is five-sixths of that adopted by Herschel in the Cape observations, and a comparison of the two is very suggestive. In the denser parts I have counted over 100 stars in a square inch, or more than 3500 stars in a degree, and in some places they run up to 130 in a square inch, upwards of 4500 in a degree, and the enlargement has lost many of the fainter stars visible on the negative. The mottled appearance of the nebula and its vast extent are strikingly brought out. The scale in the original negative is not large enough to divide some of the close groups, hence they appear in the enlargement as one star.

Sydney Observatory :
1892 *April* 11.

Downloaded from http://mnras.oxfordjournals.org/ at Serials Section, Dixson Library on June 9, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System